

Applic. No. : 09/931,689

In the Claims:

1 (currently amended). An IGBT with PN insulation,
comprising:

a low-doped semiconductor substrate of a first conductivity
type;

a low-doped drift zone of the first conductivity type formed
in said low-doped semiconductor substrate; and

a first highly doped well zone of the first conductivity type
and a second highly doped well zone of a second conductivity
type, opposite to the first conductivity type, successively
disposed between said drift zone and said semiconductor
substrate providing a an electrical PN insulation.

2 (previously presented). The IGBT according to claim 1,
which comprises an IGBT cell with a cathode, and an anode
surrounding said IGBT cell at a distance at an edge of said
~~drift zone, formed in said drift zone.~~

3 (previously presented). The IGBT according to claim 1,
~~which comprises a short circuit strap connecting respective~~
two well zones on a surface thereof.

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4 (previously presented). The IGBT according to claim 1, which comprises a short-circuit strap connecting respective two well zones and said semiconductor substrate to one another on surfaces thereof.

5 (previously presented). A method of manufacturing a well zone for an IGBT, which comprises manufacturing horizontal regions of a well zone of an IGBT according to claim 1 by one of implantation and diffusion, and manufacturing vertical regions of the well zones by performing at least two epitaxial steps with a subsequent process selected from the group consisting of implantation and diffusion.

6 (previously presented)). A method of manufacturing a well zone for the IGBT according to claim 1, which comprises manufacturing horizontal regions of a well zone of an IGBT according to claim 1 by one of implantation and diffusion, and manufacturing vertical regions of the well zones by etching trenches and subsequently filling the trenches with doped polycrystalline silicon and diffusing out.
